

PART III

PHYSICAL DESCRIPTION

Physical Regions of Washington

On the basis of surface features, Washington may be divided into eight general regions. Agricultural settlement is influenced by factors of topography, climate, soil, forest vegetation and water resources distinctive to each of the physiographic regions. Each has become a different type of farming area as settlers have learned to adapt crops and livestock to the conditions, or have improved limitations through drainage or irrigation.

Coastal Plains

A narrow, sandy plain with shallow bays, tidal flats, stream deltas and low headlands lies between the coastline and the Coast Range. It extends from the Columbia River mouth almost to Cape Flattery, being midest and lowest in the Grays Harbor and Willapa Bay districts. The climate is mild and damp with a long growing season, but it is too cool, cloudy and wet for most crops. Originally, this area was covered with heavy forests but much of it is now covered with woodlands. Lumbering and manufacture of wood products is the main industry. Farming is largely livestock and dairying, using the low uplands and drained areas in the lower Chehalis River Valley. Cranberry growing is important and well-adapted to numerous, boggy areas in the Grays Harbor and Willapa Bay sections. The shallow bays are also used for oyster culture. Fishing is common in the rivers and coastal banks.

Coast Range

The Coast Range is an uplifted area of sedimentary and metamorphic rocks divided into the Olympic Mountains and the Willapa Hills. The Olympics tower to nearly 8,000 feet in a dome-like structure, carved deeply by rivers. These mountains have the heaviest precipitation in the state. Snowfields and heavy forest cover the mountains. Most of the wilderness area is within the Olympic National Forest and Olympic National Park, being managed for recreation, wildlife and timber. Farm settlement is limited to some foothill river plains and coastal terraces such as the Dungeness and Port Angeles districts along the Strait of Juan de Fuca. Here in the lee of the mountains, rainfall is moderate and irrigation is practiced by some livestock farmers. The Willapa Hills country is wet, heavily forested and carved into numerous narrow valleys. Logging is the main industry, combined with livestock farming in the upper Chehalis River Valley and along the banks of the Columbia River. Wet climate, hilly topography and the difficulty of clearing stump land retard agriculture.

Willamette-Puget Sound Lowland

A broad lowland, described as a trough or valley, lies between the Coast Range and the Cascade Mountains. The northern part is the Puget Sound Lowland which has been glaciated and is occupied by the sea in the lowest section. The continental glacier reached slightly south of Olympia. Under a warming climate it melted and geologists believe it receded about 25,000 years ago, leaving an infertile plain of moraines and outwash gravels, sands and clays known today as the Puget Glacial Drift Plain. Its rolling surface has numerous lakes and bogs.

Most of the major cities--Seattle, Tacoma, Everett, Bellingham and Olympia--have been built on moraines bordering the Sound. Rivers, such as the Nooksack, Skagit, Snoqualmie, White and Puyallup, have built up deltas and flood-plains over the older gravelly plains. These narrow valleys are more fertile than the older glacial plains and support numerous small dairy, vegetable and berry farms. Most of the gravelly areas are wooded with a second-growth forest and are used for pastures. In the southern part of the Willamette-Puget Sound Lowland, there are two large valleys--the Cowlitz and Chehalis. They drain a low, hilly area with several flat prairies and bottomlands.

Agriculture is handicapped by poor drainage and flooding of the river deltas and plains, by heavy winter rainfall, by cloudy but dry summers, by coarse, gravelly upland soils and by densely wooded land which is costly to clear. Advantages are mild climate and a location close to major markets for farm products such as milk, poultry and vegetables.

Cascade Mountains

The Cascades are a wide and high topographic and climatic barrier which separates western and eastern Washington. The range is made up of sedimentary, igneous and metamorphic rocks which have been carved by glaciers and streams. High, isolated volcanic cones of lava such as Mt. Adams (12,307 feet), Mt. Rainier (14,408 feet) and Mt. Baker (10,791 feet) appear upon the older Cascade rocks. The Cascade crest varies between 3,000 and 10,000 feet and is higher and more rugged in northern Washington. Roads and railroads have been built across its lower passes in central and southern Washington. The Columbia River has cut a deep gorge and the lowest pass through the barrier. The western slope is wet and heavily forested with Douglas fir. The eastern slope is drier with a less-dense pine forest. Nearly all classified as forest land, most of the area is in Federal ownership in five national forests and Mount Rainier National Park. Tree fruit farming in the eastern slope valleys of Wenatchee, Chelan, Methow, Naches and the Columbia Gorge is most important. Sheep and cattle summer grazing on alpine grasslands is another use. Deep western slope valley bottoms such as the Skagit, Snoqualmie, Wisqually, Cowlitz and Lewis also contain livestock farms. The area is vitally important as a watershed for irrigation and city drinking water and a source of timber. Steep terrain, wet climate, short growing seasons and heavy forest vegetation are main handicaps for agriculture.

Columbia Basin

A low plateau of old lava rocks covered with stream and wind-deposited soils extends in a series of plains, ridges, coulees and hills from the Cascades to the eastern Washington border. The area is basin-like in structure, being higher around its margins and sloping inward to low and level central plains. It has been sharply eroded by the Columbia River and its interior tributaries, the Snake, Yakima, Palouse and Spokane Rivers. The basin has sub-areas created by crustal movements and erosion.

- A. The Yakima Folds are a series of hilly ridges extending from the Cascades eastward into the lower part of the basin. The Yakima and Columbia Rivers have cut gaps through the ridges and have built up plains in the troughs between them. The rich alluvial plain of the Yakima River is an important irrigated valley.

- B. The Waterville Plateau is a tableland of thin soils overlaying basaltic rock at an elevation of 2,500 to 3,000 feet. It has gorges cut by the Columbia River and ancient glacial outwash streams once flowing in Moses and Grand Coulees. It is too high for irrigation and is used for dryland grain and livestock farming.
- C. The Channelled Scablands is a belt of dry terrain carved by ice-age rivers into a series of coulees. Bare rock is exposed in the coulees. Small plateaus between the old river channels have thin soils used for dryland farming. The Grand Coulee of this region has been developed into a major irrigation reservoir.
- D. The Palouse Hills consist of fertile deposits of wind-blown soil overlaying basaltic lava flows. After being deposited in large dunes, the formation was reshaped by streams into an intricate pattern of low, rounded hills. The hills receive 16 to 25 inches of rainfall annually and have deep, porous and fertile soils. It is one of the richest farming areas of the Pacific Northwest.
- E. The Central Plains are low and relatively level expanses of soil, deposited by old streams crossing the Channelled Scablands and later by the flooding of the Yakima, Columbia, Snake and Walla Walla Rivers. Climate is desert-like (6-12 inches of precipitation per year). The lower lands of the area, the Quincy and Pasco Basins and the Walla Walla Valley, are irrigated. The Quincy Basin is a new irrigation area watered by Grand Coulee Dam.

Agricultural handicaps in Columbia Basin regions are mainly found in its dry, continental climate. Large irrigation systems built since 1900 have overcome much of the need for water on rich valley and basin soils. Dryland farming in higher areas is practiced widely, although occasional variations in rainfall, lack of snowfall, winter-kill, water and wind erosion inflict damage to field crops and to livestock ranges.

Okanogan Highlands

A portion of the Rocky Mountains, consisting of well-eroded, old granites, lavas and sedimentary rocks, extends across north-central Washington. These are the Okanogan Highlands, the state's richest mineral area. Summit levels reach 4,000 to 5,000 feet with peaks exceeding 7,000 feet. Prominent north-south valleys are occupied by irrigated tree fruit and livestock farms. These are the Okanogan, Sanpoil, Kettle and Colville Valleys. The Columbia River gorge through the Okanogan Highlands is occupied by the large man-made lake behind Grand Coulee Dam--Roosevelt Lake. Higher and wetter portions are forested with pine and larch, and are managed for timber and for livestock ranges by the United States Forest Service and the Bureau of Indian Affairs. Cold winter temperatures, short growing seasons, dry valley climates and remoteness from markets are farming handicaps.

Selkirk Mountains

The Selkirks, a range of the Rocky Mountain system, extend into the northeast corner of Washington. The rocks are old mineralized granites and metamorphics reaching elevations of over 7,000 feet. The Pend Oreille River Valley at the base of the Selkirks is an agricultural area of narrow bottom lands settled by livestock farmers. Nearly all of the uplands are in Kaniksu National Forest. While

climate is cool and growing seasons are short, the Pend Oreille Valley has an advantage of being relatively in close proximity to the Spokane metropolitan market area.

Blue Mountains

The Blue Mountains are an uplifted and eroded plateau extending into the southeastern corner of Washington. The strata are mainly ancient crystalline rocks which contain some minerals. The highest point of the mountains in the Washington section is Diamond Peak (6,401 feet), located on the divide between the Grande Ronde, Tucannon and Touchet Rivers. These rivers, and the Walla Walla River, have cut valleys into the plateau. Extensive pine forest and grassland areas are in the highlands within Umatilla National Forest, where rainfall is 30 to 40 inches. The Snake River has cut a deep valley and gorge across the lower parts of the mountains. The area is well developed agriculturally around its northern foothills where wind-blown soils are deep and irrigation systems are used. The Walla Walla and Tucannon Valleys are rich grain, legume and livestock areas of irrigation and dry farming. Grazing is an important use of the high lands by livestock ranchers in the upper valleys.

Topography of Whitman County

Whitman County is primarily a region of rolling and hilly plains. Most of the county is accessible and suitable for agriculture. Cropland covers nearly all of the county except in parts of the western section and along the Snake River where either the slopes are too steep or the soils over the lava bedrock are too thin.

Whitman County lies within two distinct physiographic regions. The first is the Palouse Hills sub-region of the Columbia Basin which covers most of the county except the northwestern section. The second is the Channelled Scablands, a portion of which occupies the northwestern part of the county.

The Palouse Hills section is an area covered with loess mixed with volcanic ash overlaying old lava flows of basalt. Wind has heaped the loess into ridges which generally run southwest to northeast. Streams and their tributaries such as Alkali Flat Creek, Union Flat Creek, Palouse River and Latah Creek have reshaped the wind-blown ridges into a hilly topography. In the south the Snake River has cut a deep canyon through the Palouse Hills.

The Palouse Hills range in elevation from 1,500 feet near the mouth of the Palouse River to about 2,500 feet on the Idaho line. In a few places, rock older than the Palouse, projects above the general topography in prominent buttes such as Bald Butte, Steptoe Butte, Kamiak Mountain and Tekoa Mountain. The highest elevation in the county is Tekoa Mountain (4,006 feet) and the lowest is 526 feet at the juncture of the Palouse and Snake Rivers.

In Whitman County, the Channelled Scablands include the lower Palouse Valley and the North Fork, Rock Creek and Rock Lake Valleys. During the Pleistocene ice age, melt water from a ice sheet terminating in the Spokane River Valley formed streams which flowed northward and southwestward over the area. Much of the wind-deposited soils in that area were removed by these ancient rivers and today bare rock and thin soils characterize the old channels. Between the old river channels are small plateaus where soils are deep enough for cultivation.

Climate

The relationship of weather and climate to agriculture is very close. The climate of any region not only accounts for the patterns of plant life that are native to the area but is an important factor in what man shall grow there. Variations in weather may either stimulate or destroy crops in the process of development. These and other factors make weather and climate basic to the overall study of agriculture for any given area.

Some of the factors influencing Whitman County's climate are location in the belt of the prevailing westerly winds and the distance and direction from the Pacific Ocean and terrain. The county lies near the eastern edge of a large basin between the Rocky Mountains on the east, the Cascades on the west, ranges of mountains near the Canadian border on the north and the Blue Mountains on the south. The climatic pattern within the county is related to the gradual increase in elevation from west to east.

The characteristics of both maritime and continental climates are observed. Marine influence in the county is most noticeable in the winter when the prevailing westerlies are strongest and most persistent. Winters are more mild than at similar latitudes east of the Rockies. The Selkirk and Rocky Mountains in British Columbia and Idaho protect this area from much of the cold air moving southward from Canada into the Great Plains states. Occasionally during the winter, a strong polar high pressure system will develop over western Canada at the same time low pressure covers the southwestern section of the United States. Under these conditions, cold air often moves southward across the mountains in southern British Columbia into the large inland basin in the eastern part of Washington. The coldest weather during the winter generally occurs under these conditions. A warming trend in the winter is usually the result of air from over the Pacific Ocean crossing the Cascades and reaching this area. Mixing of the warmer, moist marine air with the colder air causes considerable cloudiness and some fog in the winter. In the summer season, air from over the continent results in low relative humidity and high temperatures. Extremes in both summer and winter temperatures generally occur when the inland basin is under the influence of air from the interior of the continent.

Summers are warm, dry and sunny. The average maximum temperature during the warmest months ranges from 80 to 90 degrees over most of the agricultural areas of Whitman County. Average temperatures during the summer are a few degrees warmer in the western part of the county than to the east. Heat extremes of 110 degrees have been recorded at Colfax, LaCrosse and Pullman. Winter average minimum temperatures during January are around 21 to 22 degrees. During a few cold winters, the thermometer has dropped to -32° at Pullman. Variations in temperatures in the county are mainly related to differences in elevations.

The length of the growing season varies as much as several weeks in the county. In the vicinity of Rosalia near the northern county border the growing season is around 143 days. The season generally runs from May 9 to September 29. At LaCrosse in the western part of the county, the growing season usually extends from May 25 to September 17--about 115 days. To the east around Pullman, the season begins about the middle of May and ends around September 23, approximately 131 days. The length of the growing season is defined as the average number of days between the last occurrence of a 32 degree freeze in the spring and the first such occurrence in the fall.

Table 5. Temperature Data
Average Maximum, Average Minimum, Mean, Highest and Lowest Temperature Each Month
Whitman County

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Colfax 1 NW (1955' elev.) 1931-60	Av. Max.	34.6	41.5	50.2	61.2	69.8	75.7	86.7	84.9	76.5	63.2	46.9	39.6	61.1
	Av. Min.	22.0	25.3	30.2	35.2	40.8	46.0	48.9	46.9	41.4	35.5	28.9	25.5	35.6
	Mean	29.2	33.4	40.2	48.2	55.3	60.8	67.8	65.9	59.0	49.4	37.9	33.1	48.4
	Highest	57	62	76	91	98	102	110	105	103	92	72	65	110
	Lowest	-26	-21	-1	10	20	29	33	29	19	-1	-11	-9	-26
LaCrosse 3 ESE (1546' elev.) 1931-60	Av. Max.	36.8	43.1	52.8	63.2	71.6	78.1	89.2	86.9	78.0	64.6	47.1	39.8	62.2
	Av. Min.	22.6	26.4	31.6	35.7	41.1	47.3	51.6	49.1	43.4	36.0	29.8	27.6	36.8
	Mean	29.7	34.7	42.2	49.4	56.4	62.7	70.4	68.0	60.7	50.3	38.4	33.5	49.7
	Highest	63	64	80	92	98	105	110	113	104	92	69	65	110
	Lowest	-29	-30	6	13	23	28	32	30	15	0	-14	-17	-30
Pullman 2 NW (2545' elev.) 1931-60	Av. Max.	33.6	38.3	46.1	56.5	65.2	71.2	82.5	81.3	73.0	60.2	44.2	37.1	57.4
	Av. Min.	21.1	24.5	30.0	36.0	41.4	46.1	45.5	48.3	44.4	38.3	30.0	26.4	36.3
	Mean	27.3	31.4	38.1	46.3	53.3	58.7	66.0	64.8	58.7	49.3	37.1	31.8	44.0
	Highest	55	63	73	86	93	95	104	110	98	88	68	63	110
	Lowest	-32	-24	-4	-6	23	27	32	29	18	-1	-14	-12	-32
Rosalia (2400' elev.) 1931-60	Av. Max.	33.3	38.3	47.2	58.6	67.5	73.4	84.4	82.6	72.7	59.6	44.0	36.6	58.3
	Av. Min.	21.1	24.7	30.4	35.6	41.7	46.9	51.6	50.0	44.9	37.4	29.6	25.9	36.7
	Mean	29.2	31.5	38.8	47.1	54.6	60.1	68.0	66.3	58.8	48.5	36.8	31.3	47.4
	Highest	57	62	72	90	98	99	108	102	97	98	68	64	108
	Lowest	-23	-19	-4	10	23	30	35	32	24	4	-14	-11	-23

Source: U. S. Weather Bureau, Climatological Office.

Table 6. Probability of Freezing Temperatures -- Whitman County 1/

STATION	TEMP. (° F.)	PROBABILITY — SPRING					PROBABILITY — FALL					Grow- ing Season Mean Length (Days)
		90%	75%	50%	25%	10%	10%	25%	50%	75%	90%	
Colfax	32	Apr 22	May 4	May 18	May 31	Jun 12	Aug 24	Sep 4	Sep 16	Sep 28	Oct 9	121
	28	Mar 27	Apr 8	Apr 22	May 6	May 17	Sep 13	Sep 24	Oct 6	Oct 18	Oct 29	167
	24	Mar 4	Mar 16	Mar 30	Apr 13	Apr 24	Sep 28	Oct 9	Oct 21	Nov 2	Nov 13	205
	20	Feb 9	Feb 22	Mar 8	Mar 22	Apr 3	Oct 15	Oct 26	Nov 7	Nov 20	Dec 2	244
	16	Jan 21	Feb 8	Feb 23	Mar 8	Mar 21	Nov 8	Nov 19	Dec 2	Dec 19	—	282
LaCrosse 3ESE	32	Apr 29	May 11	May 25	Jun 7	Jun 20	Aug 25	Sep 5	Sep 17	Sep 29	Oct 10	115
	28	Apr 12	Apr 24	May 8	May 21	Jun 2	Sep 11	Sep 22	Oct 4	Oct 16	Oct 27	149
	24	Mar 7	Mar 19	Apr 2	Apr 15	Apr 27	Sep 24	Oct 5	Oct 17	Oct 29	Nov 9	198
	20	Feb 7	Feb 19	Mar 5	Mar 18	Mar 30	Oct 7	Oct 18	Oct 30	Nov 11	Nov 24	239
	16	—	Jan 31	Feb 17	Mar 4	Mar 16	Oct 28	Nov 8	Nov 20	Dec 5	—	276
Pullman 2NW (Exp. Sta.)	32	Apr 20	May 2	May 15	May 28	Jun 9	Aug 31	Sep 11	Sep 23	Oct 5	Oct 16	131
	28	Mar 16	Mar 27	Apr 10	Apr 23	May 5	Sep 21	Oct 2	Oct 14	Oct 26	Nov 6	187
	24	Feb 22	Mar 6	Mar 19	Apr 1	Apr 13	Oct 7	Oct 18	Oct 30	Nov 11	Nov 22	225
	20	Feb 8	Feb 22	Mar 8	Mar 21	Apr 2	Oct 19	Oct 31	Nov 11	Nov 23	Dec 5	248
	16	—	Feb 8	Feb 24	Mar 10	Mar 22	Nov 3	Nov 15	Nov 29	Dec 23	—	268
Rosalia	32	Apr 14	Apr 26	May 9	May 23	Jun 4	Sep 6	Sep 17	Sep 29	Oct 11	Oct 22	143
	28	Mar 19	Mar 31	Apr 13	Apr 26	May 8	Sep 19	Sep 30	Oct 12	Oct 24	Nov 4	182
	24	Feb 23	Mar 7	Mar 20	Apr 3	Apr 15	Oct 4	Oct 15	Oct 27	Nov 8	Nov 19	221
	20	Feb 5	Feb 16	Mar 2	Mar 16	Mar 27	Oct 24	Nov 4	Nov 16	Nov 28	Dec 9	259
	16	Jan 22	Feb 4	Feb 19	Mar 4	Mar 16	Nov 5	Nov 15	Nov 28	Dec 13	—	282

Source: U. S. Weather Bureau, Climatological Office.

1/ To illustrate the data in the table, we find that the 50 percent probability of a 32° spring freeze for Pullman is May 15. But there is also a 25 percent chance (1 year in 4) that a 32° freeze will occur as late as May 28, and 10 percent chance as late as June 9.

Table 7. Precipitation in Inches - Whitman County

Station	Elevation (ft.)	Period of Record	Average Annual	Greatest Annual	Least Annual	Greatest Monthly	Least Monthly	Greatest Daily
Colfax 1 NW	1,955	1931-60	20.97	30.84	12.99	8.61	0	2.00
Ewan	1,720	1931-60	16.32	25.27	11.20	5.53	T	1.28
LaCrosse SESE	1,546	1931-60	14.05	20.45	8.58	4.92	0	1.36
Pullman 2 NW	2,545	1931-60	20.49	29.85	12.12	8.60	0	2.45
Rosalia	2,400	1931-60	18.31	27.57	11.06	7.46	0	1.83
Tekoa	2,610	1931-60	22.32	34.43	12.97	6.94	0	1.69

Source: U. S. Weather Bureau, Climatological Office.

Table 8. Precipitation for Selected Stations by Months
Whitman County

Station	Average Monthly Precipitation (in inches)												Annual Total (inches)
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
Colfax 1 NW	2.55	1.93	2.14	1.54	1.41	1.64	.46	.47	1.12	2.01	2.66	3.04	20.97
Ewan	1.93	1.52	1.20	1.16	1.37	1.38	.38	.57	.87	1.82	2.13	1.99	16.32
LaCrosse SESE	1.84	1.37	1.33	.96	.96	1.13	.28	.36	.68	1.35	1.74	2.05	14.05
Pullman 2 NW	2.67	2.10	2.12	1.49	1.46	1.54	.39	.52	1.08	1.91	2.47	2.74	20.49
Rosalia	2.20	1.64	1.66	1.26	1.49	1.53	.40	.52	1.13	1.82	2.20	2.46	18.31
Tekoa	2.45	2.06	1.98	1.50	2.04	1.93	.51	.71	1.49	2.15	2.73	2.77	22.32

Source: U. S. Weather Bureau, Climatological Office.

Isohyets (lines connecting points of equal precipitation) generally follow the contour lines in Whitman County. Precipitation varies from an average of below 12 inches annually in the western part of the county to over 24 inches on the Idaho border to the east. In general, precipitation increases from west to east as does elevation.

Generally speaking, precipitation is light in summer, increasing in the fall, reaching a peak in winter, then gradually decreasing in the spring with an increase in late spring and early summer followed by a sharp decrease in mid-summer. Although the summers are dry, heavy rain and hail are occasionally associated with thunderstorm activity in the spring and summer.

Winter precipitation may occur as either rain or snow; however, most of the precipitation falls as snow. Around Colfax, snow can be expected from the middle of November until the first of March. Snow accumulates to a depth of 10 to 15 inches almost every winter and a snow cover remains on the ground most of the time from the middle of December until the last of February. A "chinook" wind or a rain sometimes melts a snow cover very rapidly and results in severe erosion in the hilly areas under cultivation. To the north in the vicinity of Rosalia, snow can be expected after the first of December and will remain on the ground most of the time from mid-December through mid-February. Snow depths seldom exceed 8 to 12 inches in this area. Frost penetration in the soil reaches a depth of 15 to 20 inches almost every winter and 25 to 30 inches in the more severe winters when the snow cover is light. At Pullman, the depth of snow on the ground ranges from 6 to 12 inches during an average winter, however, in a few of the heavier snowfall years, the depth has ranged from 18 to 22 inches.

The distribution of the precipitation makes the area well adapted to the raising of fall wheat. In the eastern part of the county, the heavier rainfall

and high organic content of the soils, together with cool nights, have resulted in annual cropping with emphasis on dry peas.

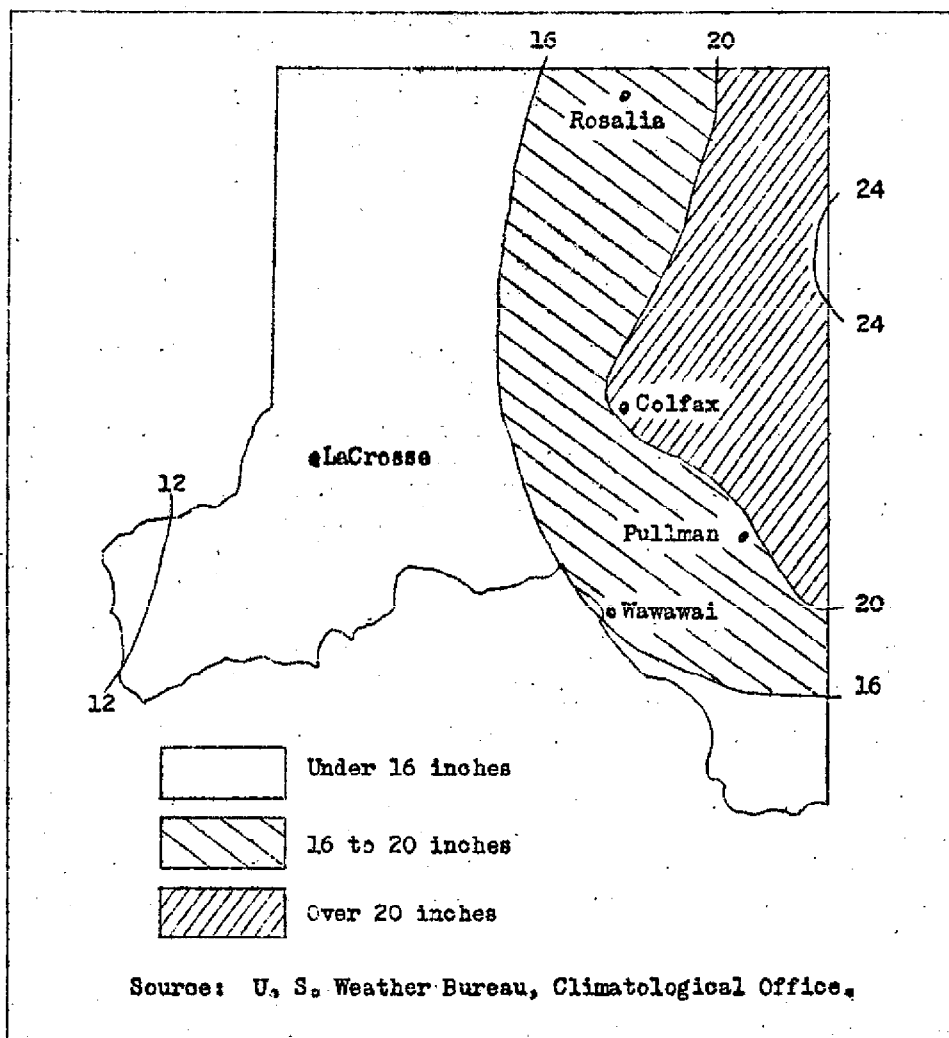


Figure 5. Distribution of Precipitation
Whitman County

Natural Vegetation

Most of Whitman County was grassland before the area was put under cultivation. The region was first used by cattlemen before it was discovered that the land was ideal for growing wheat. Native grasses varied in species from the drier western portion of the county to the wetter, higher elevations of the Palouse Hills to the east. Most common was bunchgrass which reached over two feet in height and grew in clumps. In the wetter eastern portion of the county, blue bunchgrass, June grass and other species grew in dense stands forming a sod.

In the bottomlands and in other areas where ground moisture was abundant, there were woodlands of willow, cottonwood and aspen. Ponderosa pine, lodgepole pine, western larch, Engelmann spruce and alpine fir were found in scattered stands on some of the higher uplands. According to a Forest Service survey in 1960, Whitman County contained only about 10,000 acres of commercial forest land. All of the woodland was in private ownerships. In 1960, there was an estimated reserve of live sawtimber containing 43,000,000 board feet in the county.

Cultivation of the grasslands eliminated the large herds of deer, antelope, elk and wild horses which once roamed the area. Whitman County today is an important area for game birds. According to the Washington State Game Department, about 37,000 pheasants, 16,080 ducks and 1,940 geese were bagged by sportsmen during 1962. Also, 820 deer were killed. The wild fur catch during the 1962-1963 season in Whitman was as follows: 194 muskrat, 35 raccoon, 13 mink, 9 coyote, 3 bobcat, 2 skunk and 2 weasel.

Land Classification and Soils

Most of Whitman County consists of good farming land and soils of better than average fertility. It contains one of the largest areas of Class II and Class III land in the state. The best soils in the area are largely found in the eastern and west-central parts of the county. Major soil series are the Ritzville, Walla Walla, Athena and Palouse. All of these soils are pedocals, rich in calcium and other soluble minerals. They were deposited in the area by wind action and formed under semi-arid grassland conditions.

Ritzville soils are wind-deposited, desert-type, light-brown loams. These slightly alkaline soils are suited for dry farming and grazing. Most of this series lies in Class VI lands along the lower Palouse River. Walla Walla soils are fine in texture, dark brown in color and are well-suited for wheat farming. These soils, deposited by stream as well as by wind action, are located along the western edge of the Palouse Hills in Class II land.

The Athena series are similar to the Walla Walla except that they are older, deeper and were formed under heavier grass cover and rainfall. Athena soils extend through the central part of Whitman County in a belt from Rosalia to the Snake River. These soils are found on rounded, hilly Class II and III land and are deep and easily cultivated for wheat, barley and peas.

The Palouse series extend north-south in a wide belt along the Whitman County-Idaho border. Nearly all of it is classified as good to moderately good land, although a large part of it is on sloping hills. The soil, dark in color, was deposited by wind in deep, large dunes which became rounded and grass-covered under an annual precipitation of about 20 inches.

The wind-deposited soils of Whitman County have the important qualities of being deep, moisture absorbent and free of gravel, stones and clay. The topsoil zone is deep and fertile and has a high mineral content. The major problem in farming these grassland soils is wind and water erosion on the steeper hill slopes. In earlier times, the sod of the original grassland prevented washing by rain and wind storms.

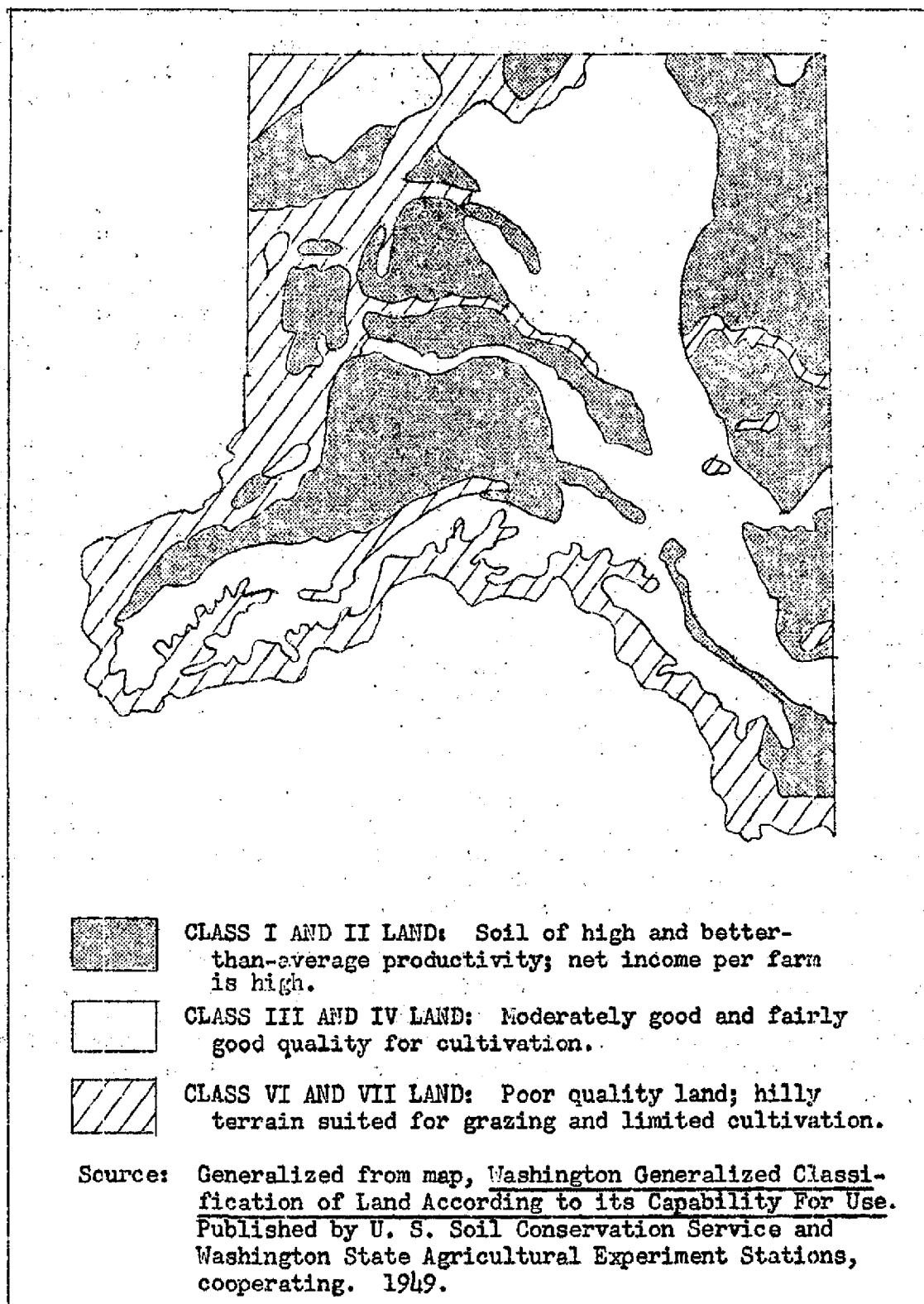


Figure 6. General Quality of Land in Whitman County